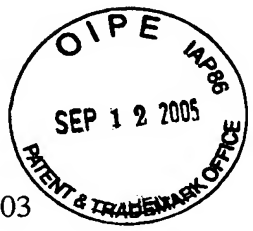
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Jens-Christian D. Meiners et al.

Serial No.: 10/672,254

Filed: September 26, 2003



Group Art Unit: 1732

Examiner: Angela Y. Ortiz

For: PACKAGING TECHNIQUE FOR ELASTOMERIC MICROFLUIDIC CHIPS AND MICROFLUIDIC DEVICE PREPARED THEREBY

Attorney Docket No.: UOM 0275 PUSP

DECLARATION OF DR. JAMES W. PROSCIA

Commissioner for Patents
United States Patent and Trademark Office
Washington, D.C. 20231

Sir:

I, Dr. James W. Proscia, do hereby declare and state as follows:

1. I obtained a B.A. in Chemistry from New York University, and my Ph.D. in Chemical Physics from Harvard in 1988. I have had considerable training and experience in organic chemistry. I am also familiar with the construction and use of elastomeric microfluidic devices.

2. I am familiar with U.S. Patent Application Serial No. 10/677,254 and U.S. Patent 4,304,749 to Bauer.

3. I fail to find any relevance between the injection molding process of *Bauer* and the field of elastomeric microfluidic devices.

In order to injection mold thermoplastics in the *Bauer* process of encapsulating spray devices, considerable pressure is required to force the molten thermoplastic into the mold. This pressure is generally supplied by a heated single or twin screw extruder which

contains very viscous and molten thermoplastic. One skilled in the art of microfluidics devices which include very small fluid passages would not be motivated to look to *Bauer* or to any other thermoplastic injection molding process, as the high temperatures involved could facilitate outgassing from the elastomer, as mentioned in the application specification. The high pressures involved would also be expected to distort or even completely close some or all of the very fine microchannels.

Moreover, the broad claims of the application recite the use of a curable resin which exhibits volumetric contraction upon cure. A thermoplastic resin is not considered a curable resin by one skilled in the chemical arts. A curable resin is one which cures by chemical reaction, e.g. a photocurable, thermocurable, or thermosettable resin. Such resins contain reactive chemical groups which crosslink, chain extend, or both, to produce a "cured" product. A thermoplastic resin does not cure as it hardens from a liquid to a solid. Rather, it merely solidifies. A phase change such as this has never been considered as "curing." Curable resins include such varieties as thermosettable polyurethanes, photocurable and thermocurable acrylates, epoxy resins, vinyl ester resins, and the like. Thermoplastic resins such as polyacetals, polyolefins such as polypropylene, thermoplastic polyurethanes, polycarbonates, polyamides and the like are often used for molding, in particular injection molding. However, such thermoplastics do not cure, and are not considered curable resins by those skilled in the art.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

James Proscia

Dr. James W. Proscia

Dated: 9/8/05